Major New Source Review Reform (Revision E03) Proposed Amendments

- **This action will:**
  - Modify permitting rules to include the basic elements of major new source review (NSR) reform.
  - Needed to maintain consistency with federal requirements.

Background – Summary of New EPA Requirements

Five main elements:

1. changes to the method for determining baseline actual emissions
2. changes to the method for determining emissions increases due to physical or operational change ("actual-to-projected actual" test)
3. pollution control projects (PCPs)
4. Clean Units
5. plantwide applicability limits (PALs)

Baseline Actual Emissions

Actual Emissions:

Old Requirements for non-EUSGUs

- Average of the annual emissions for the two year-period immediately preceding the project;

OR

- Another 2-year period if it is determined to be more representative of operations.

Baseline Actual Emissions:

New Requirements for non-EUSGUs

- Average annual emissions that occurred during any consecutive 24-month period in the past 10 years.
  - ✓Adjust to reflect current emissions control requirements.
  - ✓Reduce for any emissions that exceeded allowable emissions.
  - ✓Available only if adequate data is available for the selected time period.
  - ✓Use same 24-month period for all emissions units involved in project.
  - ✓May use a different 24-month period for each pollutant.

Baseline Actual Emissions:

WEPCO Provision for EUSGUs

(unchanged; added to Virginia baseline rule)

- Baseline actual emissions are based on any consecutive 24-month period within 5 years immediately preceding the project.
- A different period may be used if the agency agrees that it is more representative of normal operations.

Baseline Actual Emissions
EXAMPLE #1

Year	VOC Emissions
1996	75 tpy
1997	**85 tpy**
1998	**95 tpy**
1999	80 tpy
2000	60 tpy
2001	50 tpy
2002	50 tpy
2003	40 tpy
2004	**25 tpy**
2005	**35 tpy**

New Rule: Average annual emissions = 90 tpy

Old Rule: Average annual emissions = 30 tpy

Baseline Actual Emissions
EXAMPLE #2

Year	VOC Emissions
1996	750 tpy
1997	**850 tpy**
1998	**950 tpy**
1999	800 tpy
2000	60 tpy
2001	50 tpy
2002	50 tpy
2003	40 tpy
2004	**25 tpy**
2005	**35 tpy**

New Rule: Average annual emissions = 900 tpy
Adjusted baseline = 900 x 0.10 = 90 tpy

Thermal oxidizer begins operation and controls emissions by 90%

Old Rule: Average annual emissions = 30 tpy

Baseline Actual Emissions
EXAMPLE # 3 (EUSGU)

Year	SO2 Emissions
2001	150 tpy
2002	**165 tpy**
2003	**175 tpy**
2004	150 tpy
2005	145 tpy

WEPCO Rule: avg. annual emissions = 170 tpy

New Rule: avg. annual emissions = 170 tpy

Using Baseline Actual Emissions

- Baseline actual emissions will be used to:
  - determine emissions increases resulting from a project
  - compute contemporaneous emissions increases
  - establish PALs
- Old “actual emissions” definition retained for:
  - conducting air quality analyses (NAAQS, PSD increments, AQRVs)
  - computing offsets required

Actual-to-Projected-Actual Test

Applicability Test

Old NSR Requirements

- Non-EUSGUS and New Emissions Units:
  "Actual to Potential Test" - compare past actual emissions to future potential emissions
- EUSGUs:
  "WEPCO Test" - compare actual to representative actual annual emissions

Actual-to-Projected Actual Test

New Requirements

- Apply to all changes at existing emissions units.
- Source must make a projection of post-change annual emissions:
  - ✓Project maximum annual emissions for the 5 year period after the change or 10 year period after the change (if the change involves an increase in the emissions unit's PTE or capacity).
  - ✓May exclude any emissions increases that the emissions unit could accommodate before the change, and that are unrelated to the change (e.g. demand growth).
  - ✓May use potential emissions in making projection (source's option; could avoid recordkeeping).

Actual-to-Projected Actual Test

New Requirements, Continued

- After it makes a projection of the post-change annual emissions, source must then determine if the change will result in:
  - ✓ a significant emissions increase and a significant net emissions increase, or
  - ✓ no significant emissions increase
- If significant = must undergo major NSR
- If not significant = no major NSR (but may be subject to minor NSR)

Recordkeeping and Reporting

When there is a reasonable possibility that the project could result in a significant emissions increase:

- EUSGUs:
  - Submit notification before beginning actual construction (approval not needed to begin construction).
  - Report annual emissions for 5 years after the change, or 10 years if the change increases the emissions unit's PTE or capacity.
- Non-EUSGUs:
  - Maintain a record of the baseline, projection, and annual emissions information for 5 years after the change, or 10 years if the change increases the emission unit's PTE or capacity.
  - Report if annual emissions result in a significant emissions increase and are inconsistent with the projection.
- Recordkeeping does not apply if projection is based on PTE.

Past Actual vs. Future Actual

EXAMPLE

Modification at Plant ABC

Assumptions: existing major source, attainment area, VOC emissions, began operations in late 2001

Year*	VOC Actual Emissions
2001	125 tpy
2002	135 tpy
2003	155 tpy (projected)
2004	155 tpy (projected)
2005	160 tpy (projected)
2006	160 tpy (projected)
2007	165 tpy (projected)

Future Potential Emissions:
300 tpy

Applicability Test (Old)

EXAMPLE

Modification at Plant ABC

Assumptions: existing major source, attainment area, VOC emissions, began operations in late 2001

Year*	VOC Actual Emissions
2001	125 tpy
2002	135 tpy
2003	155 tpy (projected)
2004	155 tpy (projected)
2005	160 tpy (projected)
2006	160 tpy (projected)
2007	165 tpy (projected)

Future Potential Emissions:

300 tpy

Old Rule

past actual (130 tpy) vs. future PTE (300 tpy)

Proposed Increase = **170 tpy [>40 tpy]**

Net emissions increase = 170 tpy

[>40 tpy]

Modification subject to PSD

Applicability Test (New)

EXAMPLE

Modification at Plant ABC

Assumptions: existing major source, attainment area, VOC emissions, began operations in late 2001

Year*	VOC Actual Emissions
2001	125 tpy
2002	135 tpy
2003	155 tpy (projected)
2004	155 tpy (projected)
2005	160 tpy (projected)
2006	160 tpy (projected)
2007	165 tpy (projected)

Future Potential Emissions:

300 tpy

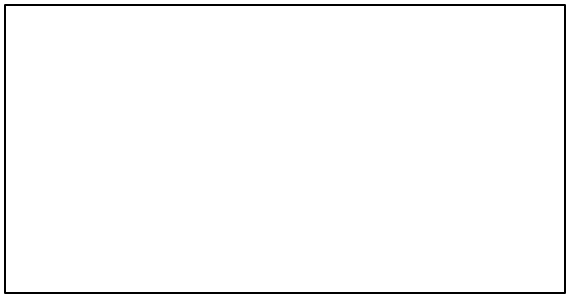
New Rule

Baseline actual emissions (130 tpy) vs. projected actual (165 tpy)

Proposed Increase = **35 tpy [< 40 tpy]**

MINOR MODIFICATION

Clean Unit Test



Clean Unit Test

- An alternative approach to major NSR applicability for modifications.
- If a change does not cause an emissions unit to exceed its permitted allowable emissions, major NSR does not apply.
- If the permitted allowable emissions will be exceeded, then the source must determine whether the projected post-change emissions will result in a significant emissions increase and a significant net emissions increase.

What Qualifies as a "Clean Unit"?

- Clean Unit status is automatic for most emissions units that went through major NSR and are complying with BACT/LAER.
- Clean Unit status can be granted through a permitting process if the emissions control is:
  - Comparable to BACT/LAER; or
  - Substantially as effective as BACT/LAER.
- Emissions controls can be add-on controls; pollution prevention; or work practices, but an investment in the control is required to qualify.
- Clean Unit status is available for up to 10 years after applying emission controls.

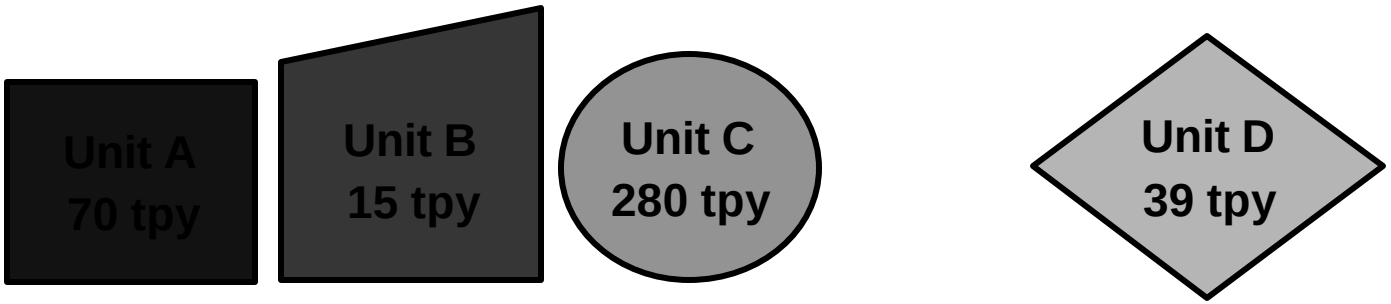
Clean Unit Test
EXAMPLE

2006: PSD permit issued to Alpha, Inc.

- New units, A, B, C, subject to BACT and automatically qualify as Clean Units.

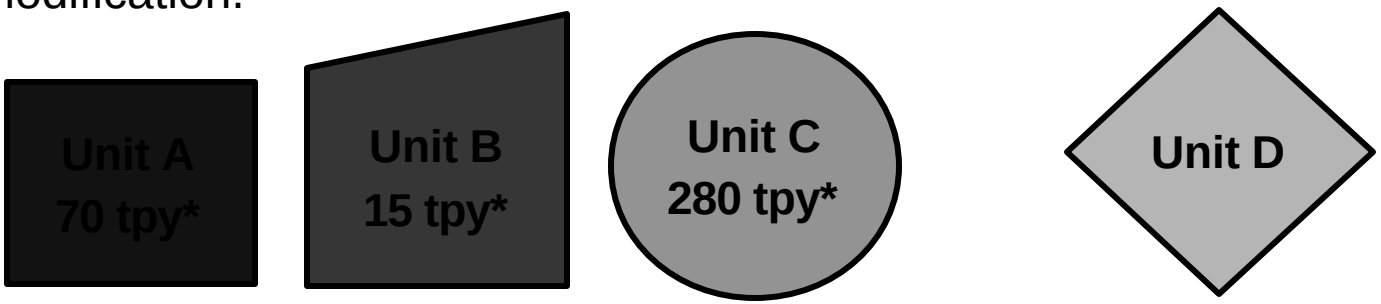
2008: Unit D added

- synthetic minor mod. w/ PTE = 39 tpy



Clean Unit Test EXAMPLE (continued)

- In 2010, Units A, B, C, D are modified:
  - Units A and B will maintain emissions below 70 tpy and 15 tpy, respectively; they are not part of a major modification;
  - Unit C's emissions will increase above 280 tpy; it is subject to the actual-to-projected-actual test to determine whether it is part of a major modification;
  - Unit D is not a Clean Unit; it is subject to the actual-to-projected-actual test to determine whether it is part of a major modification.



*PTE Established in 2006

Pollution Control Projects (PCPs)

PCP Exclusion

- Allows a project that reduces emissions of one or more air pollutants regulated under the Act to avoid major NSR despite causing a significant emissions increase in a collateral pollutant.
- Previous EPA rules provided a PCP exclusion to only EUSGUs. EPA extended the exclusion to other industries in a policy memo issued in 1994. The final rules replace the existing WEPCO PCP provisions and codify new requirements for all industries.
- The exclusion only applies to activities at existing emissions unit; addition of new emissions units does not qualify.

PCPs: What qualifies?

- Activity must pass two tests:
  - Environmentally Beneficial Test (shows benefits outweigh emissions increase).
  - "Cause-or-Contribute" Test (shows that project will no cause or contribute to a NAAQS or PSD increment violation, or adversely impact a Class I AQRV).
- Listed Projects -- No permit action is required, but a notice must be sent to the agency with information on the project and air quality analysis.
- Unlisted Projects – A permitting action, with public notice and comment, is required to show that both tests are satisfied.

Plantwide Applicability Limits (PALs)

PALs

- An alternative approach for determining major NSR applicability.
- A PAL is an annual (facility-wide) emission limitation under which the facility can make any changes without triggering major NSR for that pollutant.
- Pollutant-specific.
- 10-year term.

Establishing a PAL

- Determine baseline actual emissions for all existing emissions units using the same consecutive 24-month period for all units. (May add PTE for any unit that was added to the major stationary source after the selected 24-month period);
- Add the pollutant-specific significant emissions rate to the baseline actual emissions for the PAL pollutant;
- Subtract any emissions from emissions units that operated during the 24-month period and have since been permanently shut down; and
- Establish a step-down PAL if there are any requirements that have an effective date during the term of the PAL.

Reopening PAL permits

- The PAL permit *will* be reopened to:
  - Correct typographical or calculation errors.
  - Reduce PAL to create emissions reductions for offsets.
  - Revise PAL to reflect an increase in the PAL.
- The PAL permit *may* be reopened to:
  - Reduce PAL to reflect newly applicable federal requirements with compliance dates after the PAL effective date.
  - Reduce PAL consistent with any other requirement the state may impose under the SIP.
  - Reduce PAL if a reduction is necessary to avoid causing or contributing to a NAAQS or PSD increment violation.

Increasing a PAL

- Allowed if the increased emissions can not be accommodated under the PAL, even if all significant and major emissions units were to meet a BACT level of control.
- Emissions units causing the need for an increase (modified or new units) must go through major NSR.
- New PAL based on sum of:
  - Baseline actual emissions of small emissions units;
  - Baseline actual emissions of significant and major emissions units assuming a BACT level of control; and,
  - Allowable emissions of new or modified emissions units.

PAL Renewal

- If baseline actual emissions plus significant level are = 80% of current PAL, then PAL may be renewed at current level.
- If baseline actual emissions plus significant level are < 80% then:
  - PAL may be established at a level that is more representative of baseline actual emissions, or a level that is appropriate based on air quality needs or other considerations.
- The new PAL level can not be higher than the existing PAL (unless PAL increase provisions are met) or the PTE of the source.

PAL Expiration

- Within the timeframe specified for PAL renewals, the source shall submit a proposed allocation of the PAL to each emissions unit.
- The agency decides whether and how the PAL will be distributed and will issue a revised permit incorporating allowable limits for each emissions unit.
- Any subsequent physical or operational change at the source will be subject to major NSR.

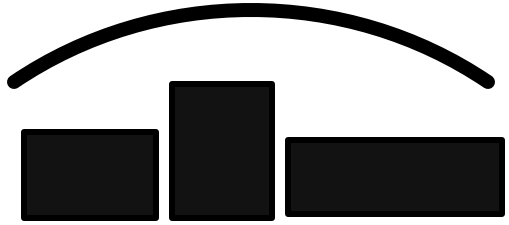
PAL Monitoring Requirements

- PAL permit must contain enforceable requirements to determine plantwide emissions.
- Source may use any of the following:
  - Mass balance calculations for activities using solvents or coatings
  - Continuous Emissions Monitoring Systems (CEMS)
  - Continuous Parameter Monitoring Systems (CPMS) or Predictive Emissions Monitoring Systems (PEMS)
  - emissions factors
- If no monitoring data exists for an emissions unit for a time period, the owner must report the maximum potential emissions without considering enforceable or operating emissions limitations.

PAL EXAMPLE

Existing Source:
Actual Emissions= 150 tpy VOC
Potential Emissions = 400 tpy VOC

Plantwide Limit =
150+40* = **190 tpy VOC**



Source can make any changes for 10 years without triggering major NSR if plantwide emissions remain <u>below</u> 190 tpy VOC.

** 40 tpy is significant emissions rate for VOC*

Developing the Virginia proposed regulation.

Process

- Training: workshops sponsored by EPA; state associations.
- Research: STAPPA/ALAPCO comments/recommendations, reports from other government agencies (NAS, etc.), environmental and industry groups, SAB report.

Process

- Public meeting
  - numerous written comments
- Ad hoc group
  - 20 members (environmental, industry, central office and regional permitting and compliance staff)
  - 3 meetings
  - no consensus on recommendations
  - 2 position reports

Changes made in state proposal to EPA baseline

Requirement	EPA final	Virginia proposal
lookback period to determine past actual emissions	10 years	5 years
24 mo. period used to establish each pollutant baseline	may be separate for each pollutant	must be same for all pollutants
consequences of miscalculating applicability or emissions	not specified	violation of terms of the permit
supporting documentation	sources must develop and maintain adequate information	sources must also provide notification that this information is available
PAL duration	10 years	5 years
Clean Unit duration	10 years	5 years

Changes made in state proposal to EPA baseline

- Balance between baseline federal requirements and identified Virginia needs (primarily concerns about compliance and enforceability).
- Compromise between two mutually exclusive public positions.
- Will affect relatively few, already heavily regulated sources – no significant impacts anticipated.
- Will be approvable by EPA.

Public Comment

- Request for additional public comment on proposed changes as well as additional specific issues.
- Public hearing and 60 day comment period.

- **Department Recommendation**:
  - That the board authorize the department to promulgate the proposal for public comment.